

CLAIMS

WHAT IS CLAIMED IS:

1. An air separation and dirt collection device for a bagless vacuum cleaner comprising:

an elongated container having a cylindrical sidewall, a open top and a closed bottom that is openable for emptying collected dirt;

a tangential air inlet formed in the upper portion of the sidewall;

a combined shroud and filter holder assembly, the shroud having an open sidewall and closed bottom with an outwardly and downwardly extending skirt disposed on the closed bottom of the shroud;

an inverted frusto-conical transition portion extending from the upper portion of the shroud to the filter holder portion extending above the upper portion of the container sidewall and being open to passage of air; and

a radially pleated filter cartridge positioned in the filter holder portion of the assembly.

2. The air separation and dirt collection device of claim 1, wherein the outer diameter of the skirt extends to between about 60 to 80 percent of the diameter of the cylindrical container.

3. The air separation and dirt collection device of claim 1, wherein the shroud has an outer diameter between about 35 to 45 percent of the diameter of the container sidewall.

4. The air separation and dirt collection device of claim 1, wherein the bottom is hinged to the sidewall and selectively openable for removal of dirt collected thereon.

5. The air separation and dirt collection device of claim 1, including a screen on the open sidewall of the shroud.

6. The air separation and dirt collection device of claim 1, wherein the sidewall of the shroud includes a plurality of holes.

7. The air separation and dirt collection device of claim 6, wherein the filter cartridge includes a radially pleated filter.

8. The air separation and dirt collection device of claim 6, wherein the pleated filter is a HEPA filter.

9. A vacuum cleaner including an elongated housing hingedly connected to a suction nozzle with a dirty air inlet and a suction source in the upper portion and having an opening for receiving a dirt separation and collection container, the container comprising:

- an elongated container having a cylindrical sidewall, a open top and a closed bottom that is openable for emptying collected dirt;

- a tangential air inlet formed in the upper portion of the sidewall;

- a combined shroud and filter holder assembly, the shroud having an open sidewall and closed bottom with an outwardly and downwardly extending skirt disposed on the closed bottom of the shroud;

- an inverted frusto-conical transition portion extending from the upper portion of the shroud to the filter holder portion extending above the upper portion of the container sidewall and being open to passage of air; and

- a radially pleated filter cartridge positioned in the filter holder portion of the assembly.

10. A combined shroud and filter holder for a bagless vacuum cleaner, comprising:

- a cylindrical filter holder container portion having an open top and bottom;
- a frusto-conical portion connected to the open bottom of the holder, with the smaller opening positioned away from the bottom;
- a cylindrical shroud connected to the smaller cone opening,
- the sidewall of the shroud open to passage of air; and
- the bottom of the shroud having an outwardly and downwardly facing skirt extending from the closed bottom of the shroud.

11. The combined holder of claim 10, wherein a mesh covers the opening in the sidewall of the shroud.

12. The combined holder of claim 10, wherein the sidewall of the shroud has a plurality of holes.

13. The combined holder of claim 10, including a cylindrical filter cartridge positioned in the holder portion.

14. The combined holder of claim 13, wherein the filter cartridge includes a cylindrical sidewall with a pleated radial filter positioned in the sidewall.